

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Engineering Division
Honolulu, Hawaii 96813

April 8, 2010

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

**APPLICATION FOR A DLNR DAM SAFETY
CONSTRUCTION/ALTERATION PERMIT
PERMIT NO. 43 – WAILUA RESERVOIR (HI00060)
GATES AND CATWALKS REPAIR, WAILUA HOMESTEAD, KAUAI**

The Engineering Division hereby submits an application for your authorization and approval for issuance of a Dam Safety Construction/Alteration Permit for the reservoir repair at the Wailua Reservoir, to Department of Land and Natural Resources, Pursuant to Chapter 179D Hawaii Revised Statutes and Chapter 190 Hawaii Administrative Rules.

APPLICANT:

Mr. Morris Atta
State of Hawaii
Department of Land and Natural Resources, Land Division
1151 Punchbowl Street Room 220
Honolulu, Hawaii 96813

LANDOWNER:

Same as applicant

SUMMARY OF REQUEST:

Application for a Dam Safety Construction/Alteration Permit to repair three gates and two catwalks at the Wailua Reservoir dam (HI00013), Wailua Homesteads, Kauai, TMK: (4)4-2-001:004, see Exhibit 1.

LOCATION: Wailua Homesteads, Kauai. See Exhibit 2.

BACKGROUND:

Wailua Reservoir consists of an embankment located in the Wailua Homesteads, Kauai. The dam was constructed in the 1920s for irrigation water. The reservoir/dam is now owned by DLNR and is used for irrigation and recreation fishing.

April 8, 2010

DESCRIPTION:

The Wailua Reservoir dam has two outlet structures to discharge water, the Throwaway Gate Catwalk with two sluice gates and the Lateral 1 Gate Catwalk with one sluice gate. The gates and catwalks were built in 1920s. The catwalks are badly deteriorated which is a hazard for the dam operator to walk on. The gates are corroded and one of the gates is inoperable. The project will replace the two wooden catwalk structures with steel catwalks, and, the three gate assemblies will be replaced entirely. See Exhibit 3 and 4.

REMARKS:

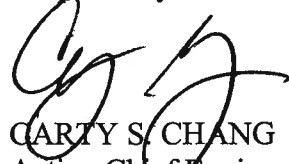
Jennings Pacific has completed a basis of design, plans and the Department of Land and Natural Resources, Land Division requests for the approval of a dam safety construction/alteration permit. The Department has reviewed the plans and concluded that it is sufficient for its intended purposes in accordance with the Dam Safety Permit General Conditions, see Exhibit 5. Staff recommends approval of this permit application.

RECOMMENDATION:

That the Board:

1. Authorize the approval and issuance of the Dam Safety Construction/Alteration Permit for this project; and
2. Direct the Chairperson to issue a dam safety permit for the repair of the Wailua Reservoir dam (DLNR Dam Safety Construction/Alteration Permit No. 43) subject to such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.

Respectfully submitted,



GARTY S. CHANG
Acting Chief Engineer

APPROVED FOR SUBMITTAL:



LAURA H. THIELEN, Chairperson

Exhibit(s):

- 1 - Owner Permit Application
- 2 - Location Map
- 3 - Scope of Work
- 4 - Construction Drawing pages
- 5 - Dam Safety Permit General Conditions

State of Hawaii
BOARD OF LAND AND NATURAL RESOURCES
Department of Land and Natural Resources
Engineering Division

APPLICATION FOR APPROVAL OF PLANS AND SPECIFICATIONS FOR CONSTRUCTION,
ENLARGEMENT, REPAIR, ALTERATION, OR REMOVAL OF A DAM

Date of Application: March 10, 2010

Applicant:

Contact Name: MORRIS M. ATTA Firm / Company: DLNR, Land Division

Mailing Address 1151 Punchbowl Street, Room 220, Honolulu, HI 96813

Telephone: 587-0422 Fax: 587-0455 Email: morris.m.atta@hawaii.gov

The Applicant hereby applies to the Board of Land and Natural Resources for the approval of the attached plans and specification for the Wailua Reservoir Catwalk Replacement (construction, etc.) in accordance with Chapter 179D HRS (as amended by Act 262, SLH 2006), and subject to the provisions, conditions, and limitations of the current Hawaii Administrative Rules and various DLNR dam safety guidelines.

Accompanying this application are:

(please check)

- | | |
|----------------------------------------------------------|------------|
| 1. Filing fee (\$25.00) (Waived for government agencies) | <u>X</u> |
| 2. Three (3) copies of the Detailed Cost Estimate | <u>X</u> |
| 3. Three (3) copies of the Final Design Report | <u>N/A</u> |
| 4. Three (3) copies of the Plans | <u>X</u> |
| 5. Three (3) copies of the Specifications | <u>X</u> |
| 6. Proposed Construction Schedule | <u>X</u> |
| 7. Supporting documents: | |
| <u>Change Order No. 1</u> | <u>X</u> |
| <u>Revised Bid Proposal</u> | <u>X</u> |

NAME OF STRUCTURE: Replace MTL Gates, Throwaway Gates, Lateral 1 Gate
Throwaway Gate Catwalk, and Lateral 1 Gate Catwalk

DAM OR RESERVOIR LOCATION: WAILUA Reservoir, Kapaa, Hawaii

Island: KAUAI

Tax Map Key: (4) 4-2-001:004, 005, & 008

Attach USGS topographic map (scale 1" = 2000') and property tax map (showing location access to site, proposed work)

State Land Use District: x Agriculture Urban Rural Conservation

BRIEF DESCRIPTION OF WORK TO BE PERFORMED

Replace three gates and two access catwalks with identical gates and new
steel-frame catwalks on spread footings.

TECHNICAL INFORMATION:

DLNR-Dam Safety-Sheet 2

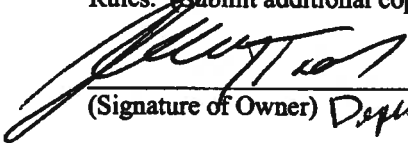
1. Drainage Area 0.88 sq. miles or 563 acres
2. Classification of Dam State regulated dam
3. Type of Structure Earthen
4. Elevation-Area-Capacity Data:

	Elevation	Surface Area (acres)	Total Storage Volume (acre-feet)
Natural Streambed	<u>65.2'</u>		
Primary Spillway	<u>94' approx.</u>		<u>1,223</u>
Secondary Spillway	<u>N/A</u>		
Top of Dam	<u>99'</u>		
Design Water Level	<u>90.3'</u>		<u>757</u>
Invert of Drain	<u>65.2'</u>		
5. Spillway Details (Type, Dimensions, Material)
Primary: 144' wide x 175' long bare soil channel
Secondary: None
6. Purpose of Structure Irrigation
(water supply, irrigation, recreation, real estate development, etc.)
7. Attach rainfall and stream flow records, and flood-flow records and estimates (as accurately as may be readily obtained)

ADDITIONAL INFORMATION

1. Primary Owner Contact (if different from applicant) Glenn Okamoto
Owner Company or Entity: Dept. of Agriculture, Ag. Resource Mgmt Div.
Mailing Address 1428 South King Street, Honolulu, HI 96814
Telephone: 973-1123 Fax: 973-9467 Email: glenn.m.okamoto@hawaii.gov
2. Registered Hawaii Professional Engineer who prepared the plan Douglas r. Schwarm
Mailing Address 801 Westchester Ave., Harrisonville, Missouri 64701
Registration No. 10642-C, Hawaii
Telephone: (831)600-7419 Fax: (831)600- Email: dschwarm@atlas-svcs.com
3. Registered Professional Engineer to be responsible for inspection during construction _____
4. Contractor (If known) Jennings Pacific LLC
Mailing Address P.O. Box 37238, Honolulu, HI 96837
Telephone: 808-537-1710 Fax: 808-537-1036 Email: scott.jennings@jenningscivil.com
5. List all other permits applications submitted to other governmental agencies:
None
6. Anticipated effect of proposed structure on natural environment: _____
None - This is a simple replacement of aged appurtenances

7. List all other parties that have ownership or other interest on the parcels where the dam and reservoir are located and identify their interest in the property. The Owners herein listed below concur with the work proposed within this application by the applicant and by his/her signing hereto, the owner of the land extends to the Board of Land and Natural Resources, and its designated representatives, a right-of-entry onto the project site to conduct any investigations or inspections required in compliance with the provisions of Chapter 13-190, Hawaii Administrative Rules. (Submit additional copies of this sheet should there be more owners)

 1151 Punchbowl St., #220; Honolulu, HI 96813
 (Signature of Owner) *Deputy Director* (Address / Interest in Dam or Reservoir) owner

 (Signature of Owner)

 (Address / Interest in Dam or Reservoir)

 (Signature of Owner)

 (Address / Interest in Dam or Reservoir)

 (Signature of Owner)

 (Address / Interest in Dam or Reservoir)

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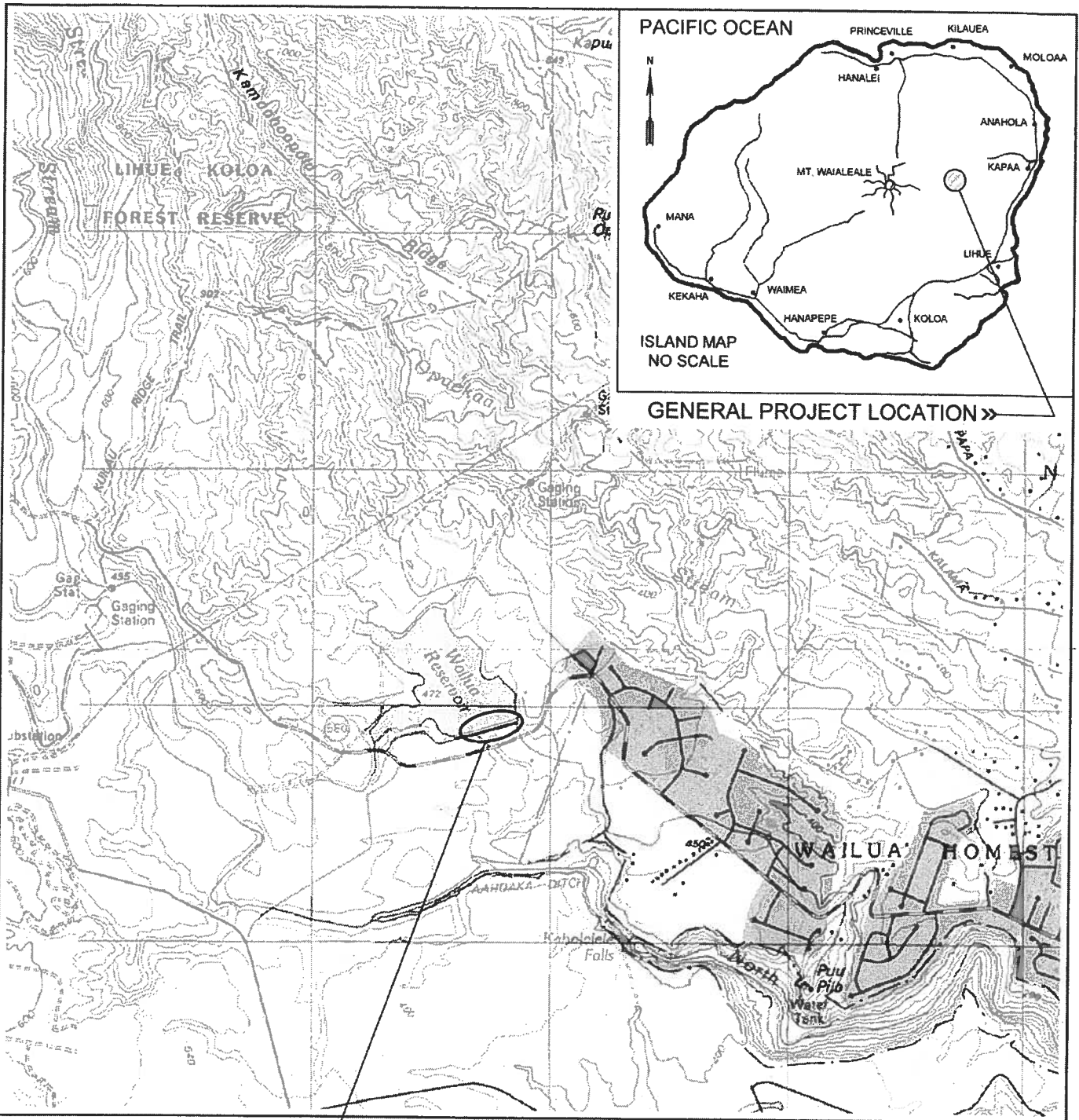
 (Signature of Owner)

 (Address / Interest in Dam or Reservoir)

I, MORRIS M. ATTA, the applicant, hereby certify that the information herein is true and factual to the best of my knowledge. Signing below indicates that the applicant understands that, if the permit requested is granted by the Board of Land and Natural Resources, the proposed work is to be initiated and completed within two (2) years of the approval date, unless specifically permitted in the approved permit terms and conditions.

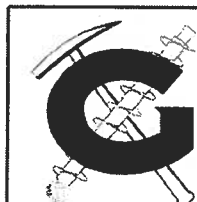
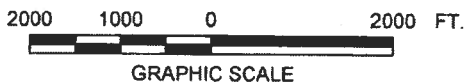

 (Signature of Applicant & Title)

Date: 3/16/2010



PROJECT LOCATION»

PROJECT LOCATION MAP **EAST KAUAI IRRIGATION SYSTEM IMPROVEMENTS** **WAILUA RESERVOIR** **ISLAND OF KAUAI, HAWAII**



GEOLABS, INC.
 Geotechnical Engineering

DATE	DRAWN BY	PLATE
APRIL 2008	JRP	
SCALE	W.O.	1
1" = 2,000'	5993-00(B)	

Exhibit 2

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
P.O. Box 373
Honolulu, Hawaii 96809

Change Order No. 1

Project Title: East Kauai Irrigation System Miscellaneous Improvements, Kapaa, Kauai, Hawaii

Contract No. 58032

Job No. DOAK02

Date: July 7, 2009

Contractor: Jennings Pacific LLC

Description and Necessity of Work to be Done:

The Contractor is to provide all labor, materials, equipment and incidentals to complete the following work:

- CO1-1 The Contractor shall design and install three steel catwalks (one at the Kapahi Reservoir and two at the Wailua Reservoir), consisting of steel piles and steel superstructure, in lieu of the concrete catwalk at the Kapahi Reservoir (Bid Proposal Item Nos. 4-10, inclusive). The Contractor shall comply with the terms and conditions described in "EXHIBIT A", attached.

Location: The work is located at the project site.

Specifications: This work shall be done in accordance with the applicable section of the specifications as modified by this change order and as directed by the engineer.

Estimate of Quantity and Cost:

Item No.	Description	Qty/Unit	Unit Price	Total
CO1-1	The Contractor shall design and install three steel catwalks (one at the Kapahi Reservoir and two at the Wailua Reservoir), consisting of steel piles and steel superstructure, in lieu of the concrete catwalk at the Kapahi Reservoir (Bid Proposal Item Nos. 4-10, inclusive). The Contractor shall comply with the terms and conditions described in "EXHIBIT A", attached.	N.A.		\$0.00

THIS CHANGE ORDER INCREASES THE CONTRACT BY:

\$0.00

The contract price is unchanged and contract completion date is extended 150 days from April 1, 2010 to August 29, 2010. The Contractor agrees that this change order represents equitable compensation for all labor, material, equipment, incidentals, and all costs and impacts due to delays and increased time of performance to complete the work described herein, including all delays encountered to date. All parties further agree that barring unforeseen changes, no additional claim for indirect costs, inefficiencies or lost profits will be claimed against this project due to the issuance of a design-build change order.

Exhibit 3

1. Computed by
MS

2. Checked by and Recommended
[Signature]
Construction Engineer

3. Accepted
[Signature]
By SCOTT JENNINGS
Title PRESIDENT, JENNINGS RIFE LLC

4. Approved
[Signature]
Chief Engineer

FINANCIAL STATEMENT TO ACCOMPANY

CHANGE ORDER NO. 1

JOB NO. DOAK02

Original Contract Amount	\$1,378,634.00
Change Recommended Change Order No. 1	\$ 0.00
Total Obligation to Contractor	\$1,378,634.00

EXHIBIT A

RESERVOIR GATES ACCESS PIER REDESIGN - THREE CATWALKS EAST KAUAI IRRIGATION SYSTEM, MISCELLANEOUS IMPROVEMENTS JOB NO. DOAK02

CHANGE ORDER DESCRIPTION

This change order to Job No. DOAK02 – East Kauai Irrigation System, Miscellaneous Improvements authorizes Jennings Pacific (Contractor) to design and install three catwalks functionally similar to the catwalks shown on the Contract Documents, using different systems and materials from the concrete shown on the bid documents. Contractor and the State have agreed that redesign of the catwalks as described in this Change Order is the preferred resolution to the budget limitations that prevent completing the work in concrete as shown on the Contract Documents. Work in the contract other than the catwalks, including but not limited to gate replacements, pipeline replacement, and breach repair, are not affected by this Change Order.

The Contractor should recognize and acknowledge that this change order includes professional design services. The documents herein set forth the criteria for the design and construction documents, which the Contractor's design and construction must satisfy. This document presents the catwalk minimum requirements used by the Contractor to design, document, and construct the facilities.

The catwalk geometry shown (in concrete) on the Contract Drawings, including walkway and platform plan dimensions, elevations, and other functionally important dimensions, shall not be altered significantly, unless specifically approved by the State.

The State desires a 30-year service life for the three catwalks designed and constructed under this Change Order. In addition to the strength, ductility, deflection, and wind resistance design requirements described in this Change Order, the design shall include construction and maintenance provisions for accomplishing this service life.

The State desires that the catwalks be designed and constructed to accommodate future modifications to the reservoir embankments. Modular catwalk and superstructure elements are one possible method of accommodating future removal and relocation.

The balance of this Change Order provides guidelines for the design phase of work.

FOUNDATION

Provide a foundation system in accordance with prevailing Kauai County design requirements and the specific requirements herein. Design the foundation to suit subsurface conditions, and capable of transmitting all building loads to the ground. Foundations may be any foundation system, or combination(s) of systems, meeting the requirements of this section. Do not use timber footings or wood foundations.

The foundation system for the new structure shall meet all gravity, soils, equipment, seismic, wind loading and structural requirements as set forth in the Code. Design and construct the foundations in accordance with the following loading criteria:

Live Loads – Per Uniform Building Code, with Kauai special provisions

Load Combinations – Per Uniform Building Code, with Kauai special provisions

Wind Exposure – Wind design shall be based on Exposure C

Engage a Professional Engineer specializing in geotechnical engineering to coordinate the support requirements with the Structural Engineer and provide design oversight of the foundation system.

See "Superstructure" for pertinent loading criteria for parts other than the foundations.

State Provided Subsurface Information

A geotechnical report is provided with the Contract Documents. Any included subsurface data and information is only for the Contractor's information and is not guaranteed to fully represent all subsurface conditions. This report is provided only to better convey data (boring logs, testing, etc.) or to document observed site conditions. Minor variations between borings should be anticipated.

The Contractor shall bear all costs associated with the site preparation and actual foundation except as allowed by the Contract Clause "Differing Site Conditions." The Contractor's Geotechnical Engineer shall perform additional subsurface investigation as required to adequately determine all applicable geotechnical factors including the type and capacity of the project foundation(s).

The Contractor's Geotechnical Engineer shall consider the provided information and any additional information obtained and prepare design memoranda with geotechnical design and construction recommendations.

SUPERSTRUCTURE

Provide catwalk and platform superstructures in accordance with UBC requirements and customary structural engineering practices.

The primary structural system of the catwalks and platforms shall be constructed of cold-formed steel and/or structural steel. Ancillary components like decking and handrails can be of any appropriate materials. Corrosion protection for catwalk components can include galvanization, paint, and other appropriate passive systems.

Design and construct the structures such that they meet all gravity, soils, seismic, wind loading and structural design requirements as set forth in the governing building code. Use the following loading criteria:

Live Loads – Per prevailing Kauai County code

Load Combinations – Per prevailing Kauai County code

Importance Factors – Walkway Occupancy per prevailing Kauai County code

Wind Exposure – Wind design shall be based on Exposure C

DESIGN SUBMITTAL PROCEDURES

Contractor-originated design documents shall represent a project design that complies with the Change Order and the design guidance listed in this document. The Design Quality Control (DQC) organization is responsible for reviewing and certifying that design submittals are in compliance with the contract requirements. The Engineer is the approving authority for design submittals.

DESIGN DRAWINGS

Design drawings may be prepared like shop drawings to minimize construction submittals after final designs are approved. Therefore, the Contractor is encouraged to prepare and submit with the design drawings, appropriate connection, fabrication, layout, and product specific drawings.

The Contractor-originated drawings will be used as the basis for the record drawings. Shop drawings included as design documents shall comply with the same drawing requirements such as drawing form, sheet size, layering, lettering, and title block used in design drawings. The Contractor's transmittal letter and submittal register shall indicate which shop drawings are being submitted as design drawings.

Format, organize, and present design drawings in accordance with standard State of Hawaii, DLNR requirements. Submit all CADD files for the final drawings on CD-ROM disks in AutoCAD 2006 format, uncompressed and unzipped.

All final Contractor-originated computations and design drawings shall be signed, dated, and bear the seal of the registered engineer of the respective discipline.

SPECIFICATIONS

Provide a Contractor-originated specification that, in conjunction with the drawings, demonstrates compliance with materials, equipment, execution, and field quality control requirements of the Change Order. The specified products, equipment, fixtures, devices, and systems submitted by the Contractor and approved by the Contracting Officer shall be used to construct the project.

Provide complete and legible catalog cut sheets, product data, installation instructions, operation and maintenance instructions, warranty, and certifications for products and equipment for which final material and equipment choices have been made. Indicate, by prominent notation, each product that is being submitted including optional manufacturer's features.

DESIGN QUALITY CONTROL

Provide a project specific Design Quality Control (DQC) for review and approval by the State. The DQC plan is separate from the construction quality control plan, which is specified in the contract documents and is unaffected by this change order. The DQC plan shall include the following:

1. A design team roster listing the Designer of Record (DOR), all subcontract designers contributing more than 5% of the design, and the scope of the work that each firm will accomplish.
2. A letter from an officer of the DOR company designating the DQC Manager and their authority.
3. DQC Manager qualifications.
4. A list of Definable Features of Work (DFOW)
5. A list of design submittal increments.

Include in the DQC plan a Communication Plan that indicates the frequency of design meetings and what information is covered in those meetings, key design decision points tied to the schedule, and how the DOR plans to include the State in those decisions.

DQC Manager responsibilities:

1. Be responsible for the design integrity, professional design standards, and all design services required.
2. Be a member of the Designer of Record's (DOR) firm.
3. Be responsible for development of the DQC Plan, incorporation and maintenance of the approved Design Schedule, and the preparation of DQC Reports and minutes of all design meetings.
4. Implement the DQC plan
5. Be cognizant of and assure that all design documents on the project have been developed in accordance with the Contract, and have been properly coordinated.
6. Provide QC certification for design compliance.
7. Prepare monthly DQC Reports that documents the work the design team accomplished that month.
8. Notify the Engineer of any proposed changes to the DQC plan.

JOB NO. DOAK02
EAST KAUAI IRRIGATION SYSTEM
MISCELLANEOUS IMPROVEMENTS
KAPAA, KAUAI, HAWAII
TAX MAP KEYS: (4) 4-6-05, 4-6-07, 4-2-01 : 04, 4-2-01:08

CHANGE ORDER NO. 1 - PREPARED BY:

JENNINGS ENGINEERING

JENNINGS ENGINEERING
ATLAS SERVICES CORPORATION
RIVERSTONE STRUCTURAL CONCEPTS
ATLAS SERVICES CORPORATION

PROJECT ENGINEERS:
CIVIL ENGINEERS:
STRUCTURAL ENGINEERS:
GEOTECHNICAL ENGINEERS:

JENNINGS
ENGINEERING

LOCATION MAP			INDEX OF DRAWING		INDEX OF DRAWING	
<div><p>VICINITY MAP NOT TO SCALE</p></div>			SHEET NO.	DRAWING NO.	DESCRIPTION	<div>ADMINISTRATOR AND CHIEF ENGINEER AGRICULTURAL RESOURCE MANAGEMENT HAWAIIAN DEPARTMENT OF AGRICULTURE</div> <div>DATE _____</div>
			01	T-1	TITLE SHEET	
02	C-1	NOTES, LEGEND AND ABBREVIATION				
03	C-2	VICINITY MAP				
04	C-3	UPPER KAPAHU RESERVOIR - INTAKE SLIDE GATE				
05	C-3A	UPPER KAPAHU RESERVOIR - INTAKE SLIDE GATE				
06	C-4	WAILUA RESERVOIR - THROW AWAY GATES				
07	C-4A	WAILUA RESERVOIR - THROW AWAY GATES				
08	C-5	WAILUA RESERVOIR - LATERAL 1 GATE				
09	C-5A	WAILUA RESERVOIR - LATERAL 1 GATE				
10	C-6	WAILUA RESERVOIR - MTL CONTROL GATES				
11	C-7	UPPER KAPAHU RESERVOIR - LATERAL B PIPELINE REPLACEMENT				
12	C-8	UPPER KAPAHU RESERVOIR - LATERAL B BREACH REPAIR				
13	C-9	KAPAHU DITCH - DIVERSION GATES				
14	S0.0	STRUCTURAL COVER SHEET/NOTES				
15	S1.0	PLAN SHEET				
16	S2.0	ELEVATION				
17	S3.0	BRACING PROFILES				
18	S4.0	STRUCTURAL DETAILS				

REVISION	SYM	DATE	APPROVED	CHANGE ORDER NO.1	SHT / OF	APPROVED
				DESCRIPTION		
				PROJECT LOCATION EAST KAUAI IRRIGATION SYSTEM MISCELLANEOUS IMPROVEMENTS WIPPA, WAIALEALE HARBOUR		
				TITLE SHEET		
				PROJECT NO.		
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SHEET NO. 10 OF 10 SHEETS

DAM SAFETY PERMIT GENERAL CONDITIONS

APPROVAL OF PLANS AND SPECIFICATIONS FOR DAM AND RESERVOIR CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION OR REMOVAL

The following General Conditions shall be adhered to for all Dam Safety permits unless otherwise authorized in writing.

1. Construction work shall commence within five years of the date of the approved application.
2. A licensed engineer in the State of Hawaii shall be in charge of the inspection of the construction.
3. One set of final plans and specifications with the County approval (signature) shall be submitted to the Department prior to the start of the work.
4. The Department shall be notified five (5) calendar days prior to the commencement of the construction, and a construction schedule shall be provided, which includes the notice to proceed date and estimated project duration.
5. Changes and/or modifications to the plans shall be sent to the Engineering Division in the form of shop drawings and/or plans that are approved and stamped by a licensed engineer.
6. The owner shall prepare a construction emergency response plan to address personnel responses should an emergency situation arise during the construction.
7. The owner or its representative shall notify the Department fifteen (15) calendar days in advance to the final construction inspection. The owner or its representative shall coordinate with the Department to conduct this inspection in the presence of the Department's dam safety personnel.
8. For dams and reservoirs that have lowered the water level or have been drained or for new construction, the applicant/owner shall file and obtain an approval of a filling plan with the Department. The applicant/owner shall not proceed with the filling of the reservoir until it receives permission from the Department. The applicant/owner shall provide documentation of monitoring during the filling operation.
9. Prior to the filling of the reservoir, the applicant/owner shall submit one copy each of the Operations Manual and the Emergency Action Plan for the facility upon completion of the project as applicable.
10. Within fifteen (15) calendar days of completing the project, the owner or its representative shall provide the Department with a confirmation letter of compliance, signed and stamped by the construction engineer, indicating that the construction was completed in accordance to approved plans and specifications including any field changes. The construction engineer shall submit the as-built drawings within 180 calendar days of the submittal of the confirmation letter of compliance.
11. The applicant/owner shall utilize appropriate erosion control best management practice measures during construction to minimize turbidity (such as scheduling of

work during periods of low stream flow) and prevent debris and construction materials, including cement, petroleum products, and other pollutants from enter the waters of the State. Construction related water and debris should be properly disposed of in a legal and environmentally safe manner and in accordance with the Department of Health and other Federal regulations.

12. The applicant/owner shall submit a copy of the dam safety application and the plans and specifications of the proposed improvements to the County Engineer of the County for which the dam resides for compliance with County codes.
13. This permit does not relieve the applicant/owner of their obligations to comply with all applicable Federal, State, and County regulations.